

layer. The method further comprises exposing the first magnetic layer to a magnetic field, thereby rearranging the magnetic domains within the first magnetic layer such that each magnetic domain wall is located within a domain wall trap.

Brief Description of the Drawings

[0010] These and other features and advantages of the invention will now be described with reference to the drawings of certain preferred embodiments, which are intended to illustrate, and not to limit, the invention.

[0011] Figures 1A-C illustrate a top-down view of a surface of a continuous pinned layer shared by multiple cells of an MRAM device.

[0012] Figures 2A-C illustrate a top-down view of a surface of a pinned layer having a plurality of domain wall traps.

[0013] Figure 3 illustrates a top-down view of a surface of a notched pinned layer having a multiple memory cells formed between each pair of consecutive notches.

[0014] Figure 4 illustrates a top-down view of a surface of a notched pinned layer in which the notches are formed along only a single side of the pinned layer.

Detailed Description of the Preferred Embodiment

[0015] For purposes of illustration, various embodiments of the invention will be described in the context of a particular memory device. The details associated with this specific implementation of the memory device are set forth to illustrate, and not to limit, the invention. The scope of the invention is defined only by the appended claims.

[0016] Figure 1A illustrates a top-down view of a surface of a continuous pinned layer 100 to be shared by multiple cells of an MRAM device. The continuous pinned layer 100 may comprise several layers and may be formed using a wide variety of well-known materials and methods. For example, the continuous pinned layer 100 may comprise a vertically stacked set of sublayers including a tantalum seed sublayer, a nickel-iron seed sublayer, a magnesium oxide, iridium-manganese, platinum-manganese or nickel-manganese pinning sublayer, and a nickel-iron, nickel-iron-cobalt, cobalt-iron or nickel-iron-chromium sublayer.